HPE MPT

HPE's Message Passing Interface (MPI) is a component of the HPE Message Passing Toolkit (MPT), a software package that supports parallel programming across a network of computer systems through a technique known as message passing. MPT requires the presence of an Array Services daemon (**arrayd**) on each host in order to run MPI processes.

HPE's MPT 1.*x* versions support the MPI 1.2 standard and certain features of MPI-2. The 2.*x* versions are fully MPI-2 compliant. Starting with version 2.10, MPT provides complete support for the new MPI 3.0 standard. Recent versions of MPT provide bug fixes and enhancementsâ such as an extension for the packet retry mechanism to cover more message types, and improvements to the congestion detection and control algorithmâ to address InfiniBand stability and scalability issues.

There may be more than one version of MPT on NAS systems. You can access the recommended version by running:

```
module load mpi-hpe/mpt
```

Note that certain environment variables are set or modified when an MPT module is loaded. To see what variables are set when you load **mpi-hpe/mpt**, complete these steps:

1. Run **module show mpi-hpe/mpt** to find out which version of MPT the module points to. For example:

   ```
   module show mpi-hpe/mpt
   /nasa/modulefiles/sles12/mpi-hpe/mpt:

   system              logger -p local2.info -t envmodules_smith display mpi-hpe/mpt
   module-whatis    Loaded recommended version of MPT.
   module              load mpi-hpe/mpt.2.23
   ```
2. Run **module show *file_name*** to see the environment variables that are set for that version. For example:

   ```
   module show mpi-hpe/mpt.2.23
   ```

You can use the following commands to build an MPI application using HPE MPT:

```
%ifort -o executable_name prog.f -lmpi
%icc -o executable_name prog.c -lmpi
%icpc -o executable_name prog.cxx -lmpi++ -lmpi
%gfortran -I/nasa/hpe/mpt/2.23/include -o executable_name prog.f -lmpi
%gcc  -o executable_name prog.c -lmpi
%g++ -o executable_name prog.cxx -lmpi++ -lmpi
```

TIP: Note that the Fortran 90 **USE MPI** feature is supported for the **ifort** command, but not **gfortran**. Replace **USE MPI** with **include "mpif.h"** if you want to use **gfortran** to compile your Fortran 90 code and link to an HPE MPT library.

Article ID: 89
Last updated: 30 Sep, 2021
Revision: 32
Porting/Building Code -> MPI Libraries -> HPE MPT
https://www.nas.nasa.gov/hecc/support/kb/entry/89/